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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/870,803	05/31/2001	Hal Hjalmar Ottesen	ROC920010046US1	1274
46797	7590	09/21/2009		
IBM CORPORATION, INTELLECTUAL PROPERTY LAW DEPT 917, BLDG. 006-1 3605 HIGHWAY 52 NORTH ROCHESTER, MN 55901-7829			EXAMINER BONSHOCK, DENNIS G	
			ART UNIT	PAPER NUMBER
			2173	
			MAIL DATE	DELIVERY MODE
			09/21/2009	PAPER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HAL HJALMAR OTTESEN and GORDON JAMES SMITH

Appeal 2007-3346
Application 09/870,803
Technology Center 2100

Decided: September 21, 2009

Before ALLEN R. MACDONALD, *Vice Chief Administrative Patent Judge*,
HOWARD B. BLANKENSHIP and ST. JOHN COURTENAY III,
Administrative Patent Judges.

MACDONALD, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF CASE

Introduction

Appellants appeal under 35 U.S.C. § 134 from a final rejection of claims 1-28. We have jurisdiction under 35 U.S.C. § 6(b).

According to Appellants, the invention relates to processing of multimedia data. More particularly, the invention relates to location-predictive restoration of flawed multimedia image data stored on a hard disk drive (HDD). (Spec. ¶ [0001]).

Exemplary Claim(s)

Exemplary independent claims 1 and 12 under appeal read as follows:

1. A method for processing multimedia data, comprising:

indexing the multimedia data to an i by j matrix; and

storing a plurality of odd/even index sequences of the i by j matrix on a hard disk drive having a plurality of logic blocks, wherein at least two odd/even index sequences are stored in separate logic blocks of the hard disk drive.

12. A tangible signal bearing medium, comprising a program which, when executed by a processor, performs a method comprising:

indexing the multimedia data to an i by j matrix; and

storing a plurality of odd/even index sequences of the i by j matrix on a hard disk drive having a plurality of logic blocks, wherein at least two odd/even index sequences are stored in separate logic blocks of the hard disk drive.

Prior Art

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Oyamada	US 5,617,333	Apr. 1, 1997
Law	US 5,671,020	Sep. 23, 1997
Ding	US 5,883,823	Mar. 16, 1999

Rejections

The Examiner rejected claims 12, 14, 16, 17, and 25 under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

The Examiner rejected claims 1, 2, 4-9, 12, 14-17, 19, 21, 22, and 24-27 under 35 U.S.C. § 103(a) as being unpatentable over the combination of Ding and Law.

The Examiner rejected claims 3, 10, 11, 13, 18, 20, 23, and 28 under 35 U.S.C. § 103(a) as being unpatentable over the combination of Oyamada, Law, and Ding.

Examiner's Findings or Conclusions

(1) The Examiner concluded that claims, 12, 14, 16, 17, and 25 are directed to non-statutory subject matter because:

The "tangible signal bearing medium" of claim 12 and its dependents, is referred to in the specification at page 7 which indicates that the "medium" can be interpreted as "information conveyed to a computer by a communications medium". Such an embodiment can include "information downloaded from the Internet and other networks". Thus it is clear that the "medium" claims are intended to be claims of mere information.

(Ans. 3).

(2) The Examiner concluded with respect to the rejections under 35 U.S.C. § 103(a):

It would have been obvious to one of ordinary skill in the art, having the teachings of Ding and Law before him at the time the invention was made to modify the odd/even indexing system of Ding to include the storage at different location, as did Law. One would have been motivated to make such a combination because this provides the more efficient access to the image data.

(Final Rej. 5).

Appellants' Contentions

(1) As to the Examiner's conclusion (1) *supra*, Appellants contend that the Examiner erred because the term "tangible" (added to claim 12 by amendment) precludes "the claims from reading on intangibles such as signals or mere information" as required by the Examiner's conclusion. (App. Br. 11-12).

(2) As to the Examiner's conclusion (2) *supra*, Appellants contend that the rejections under 35 U.S.C. § 103(a) fail to establish a *prima facie* case because the Examiner's articulated reason to combine the references ("because this provides more efficient access to the image data") is in error. Specifically, Appellants contend that "the [more efficient access to the image data] teachings of Law are not be [sic] applicable to storage and retrieval of data from a hard disk drive [such as in Ding]." (App. Br. 15).

Result

We reverse.

ISSUES

Issues on Appeal

(1)

Whether Appellants have shown that the Examiner erred in rejecting claims 12, 14, 16, 17, and 25 under 35 U.S.C. § 101 because (a) there is no preemption of a fundamental principle, and (b) the Examiner misconstrued the “tangible . . . medium” limitation required by claim 12?

(2)

Whether Appellants have shown that the Examiner has erred in rejecting claims 1-28 under 35 U.S.C. § 103(a) because the combination of prior art references does not actually provide the particular result which forms the basis of the Examiner’s articulated reason to combine the prior art references?

FINDINGS OF FACT

The following Findings of Fact (FF) are shown by a preponderance of the evidence.

Appellants’ Invention

1. Figure 3 is a flow chart illustrating one embodiment of a method for storing multimedia data utilizing odd/even index sequencing. (Spec. ¶ [0030]).

2. Although Appellants' specific embodiments process data for a still image, it is understood that other multimedia data, including video and sound data, may be processed similarly and are contemplated by the present invention. (Spec. ¶ [0030]).

3. The method 300 for storing multimedia data utilizing odd/even index sequencing may be performed on image data for an image $I(i,j)$ to be stored on a HDD. (Spec. ¶ [0030]).

4. The image $I(i,j)$ includes i_p rows of pixels and j_p columns of pixels (e.g., i_p and j_p may be integers which are divisible by 8). (Spec. ¶ [0030]).

5. The method 300 begins at step 302 and proceeds to step 310 wherein the image $I(i,j)$ is sectioned into 8 pixel by 8 pixel subimages. (Spec. ¶ [0030]).

6. As illustrated in Figure 1, the image $I(i,j)$ is sectioned into i by j subimages (i.e., i rows times j columns of subimages). For illustrative purposes, i and j are assumed to be even numbers. (Spec. ¶ [0030]).

7. Next at step 312, the i by j subimages are compressed utilizing a image data compression method, such as the JPEG compression method which compresses each i by j subimages individually instead of compressing the image $I(i,j)$ as a single whole image. (Spec. ¶ [0030]).

8. Then at step 314, the compressed data for the i by j subimages are ordered sequentially utilizing an odd/even index (OEI) mapping. (Spec. ¶ [0030]).

9. One embodiment of an odd/even index (OEI) mapping utilizes subimages ($i_{\text{odd}}, j_{\text{odd}}$) for odd rows and odd columns of the i by j subimages.

Utilizes subimages ($i_{\text{odd}}, j_{\text{even}}$) for odd rows and even columns of the i by j subimages. Utilizes subimages ($i_{\text{even}}, j_{\text{odd}}$) for even rows and odd columns of the i by j subimages. Utilizes subimages ($i_{\text{even}}, j_{\text{even}}$) for even rows and even columns of the i by j subimages. In one embodiment, the compressed data for the i by j subimages are ordered and stored sequentially in the following order: Odd/Odd, Odd/Even, Even/Odd, and Even/Even. (Spec. ¶ [0031]).

10. Continuing on to step 316, the data in the four sequences of the OEI mapping are stored into HDD logic blocks. (Spec. ¶ [0032]).

11. In one embodiment, data for each of the four sequences are stored in one or more logic blocks, and none of the sequences share the same logic block. Thus, if any one of the logic blocks fail during a HDD readback process, only one sequence or a portion of one sequence is affected. (Spec. ¶ [0032]).

12. To complete the method 300, the compressed data is written/stored onto the HDD at step 318. (Spec. ¶ [0032]).

13. Figure 5 is a flow chart illustrating one embodiment of a method for retrieving multimedia data utilizing inverse odd/even index sequencing. (Spec. ¶ [0033]).

14. One embodiment of the invention is implemented as a program product for use with a computer system. (Spec. ¶ [0028]).

15. The program(s) of the program product defines functions of the embodiments (including the methods described below with reference to FIGS. 3, 5 and 6) and can be contained on a variety of signal/bearing media. (Spec. ¶ [0028]).

16. Illustrative signal/bearing media include, but are not limited to: (i) information permanently stored on non-writable storage media (e.g., read-only memory devices within a computer such as CD-ROM disks readable by a CD-ROM drive); or (ii) alterable information stored on writable storage media (e.g., floppy disks within a diskette drive or hard-disk drive). (Spec. ¶ [0028]).

17. Such signal-bearing media, when carrying computer-readable instructions that direct the functions of the present invention, represent embodiments of the present invention. (Spec. ¶ [0028]).

18. In general, the routines executed to implement the embodiments of the invention, whether implemented as part of an operating system or a specific application, component, program, module, object, or sequence of instructions may be referred to herein as a "program". (Spec. ¶ [0029]).

19. The computer program typically is comprised of a multitude of instructions that will be translated by the native computer into a machine-readable format and hence executable instructions. (Spec. ¶ [0029]).

20. In addition, Appellants indicate various programs described by their Specification may be identified based upon the application for which they are implemented in a specific embodiment of the invention. (Spec. ¶ [0029]).

21. However, Appellants further indicate that it should be appreciated that any particular program nomenclature that described by their Specification is used merely for convenience, and thus the invention should not be limited to use solely in any specific application identified and/or implied by such nomenclature. (Spec. ¶ [0029]).

The Law Patent

22. Law relates to video filtering operations, and more particularly to performing filtering operations using an efficient pixel register and data organization. (Col. 1, ll. 7-9).

23. A data register according to Law provides data values to a parallel processing array which comprises a memory buffer including first and second memory modules. An address decoder receives an address for accessing a set of data values from the dual memory modules and asserts address values to access corresponding rows of the first and second memory modules. Select logic selects between respective columns of the first and second memory modules to retrieve the desired data values according to a predetermined order. (Col. 2, l. 63 through col. 3, l. 5).

24. According to Law:

For purposes of decimation and other video filtering operations, a plurality of consecutive pixel values are separated into odd and even pixels. Even pixels are stored in an even region beginning in a first column indicated by an initial index in one of the dual memory modules, and odd pixels are stored in a region starting in the other memory module beginning at an offset (K) from the initial index. The offset K is enough to displace the odd pixel region beyond the even pixel region and to begin in a first column of the other memory module. This data organization maximizes processor utilization since the main processor does not sit idle during any cycles while performing video processing functions.

(Col. 3, ll. 14-25).

25. Also according to Law:

In a first memory access cycle, the pixel register retrieves a group of even pixels from one module and provides them to the processing array for multiplication with a coefficient value.

In the next cycle, the pixel register retrieves an associated group of odd pixels from the other module and provides them to the processing array for multiplication with a coefficient value and for adding each result to the corresponding result from the first cycle. In a third cycle, the pixel register retrieves the next group of even pixels and provides them to the processing array for the final multiply and add step. Assuming eight processing elements, these three cycles process twenty-four input pixels and provide eight output pixels. The process is repeated until all desired pixels have been decimated in similar fashion.

(Col. 3, ll. 32-45).

26. In Law, the pixels are retrieved from the memory banks and reordered in a relatively efficient manner. (Col. 3, ll. 62-64).

27. Further according to Law:

In a pixel register according to the present invention, only two memory modules are needed, and a single address generator provides the necessary address values, provides the select values to the select logic and also provides the shift values to the shift logic. The address value provided to select rows of the second module is a conditional increment of the address value provided to the first module, thereby simplifying the logic of the address generator. This substantially associated with the memory modules.

(Col. 4, ll. 4-14).

PRINCIPLES OF LAW

35 U.S.C. § 103

“On appeal to the Board, an applicant can overcome a rejection [under § 103] by showing insufficient evidence of *prima facie* obviousness or by rebutting the *prima facie* case with evidence of secondary indicia of nonobviousness.” *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998).

Following [the] principles [set forth in *Sakraida* and *Anderson's-Black Rock*] may be more difficult in other cases than it is here because the claimed subject matter may involve more than the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for the improvement. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007).

Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit. *KSR*, 550 U.S. at 418.

“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

Claim Construction

Claim construction, when there are no underlying factual issues, is a question of law. *In re Donaldson*, 16 F.3d 1189, 1192 (Fed. Cir. 1994).

"The Patent and Trademark Office (PTO) must consider all claim limitations when determining patentability of an invention over the prior art." *In re Lowry*, 32 F.3d 1579, 1582 (Fed. Cir. 1994) (citing *In re Gulack*, 703 F.2d 1381, 1385 (Fed. Cir. 1983)).

ANALYSIS - REJECTIONS UNDER 35 U.S.C. § 103(a)

Appellants argue that the Examiner's rejections under 35 U.S.C. § 103(a) fail to establish a prima facie case because the Examiner's articulated reason to combine the references ("because this provides more efficient access to the image data") is in error. Specifically, "the [more efficient access to the image data] teachings of Law are not be [sic] applicable to storage and retrieval of data from a hard disk drive [such as in Ding]." (App. Br. 15).

We agree. We find that the "more efficient access to the image data [on the hard disk drive]" result set forth by the Examiner as the articulated reason to combine the references is erroneous. The teachings of Law are directed to, in video filtering operations (FF 22), simplified hardware and reduced overhead (FF 27) for a memory buffer including first and second memory modules (FF 23). In Law, the module addressing technique (offset K) maximizes processor utilization (FF 24), and the pixels are retrieved from the memory modules and reordered in a relatively efficient manner (FF 25 and 26). Although these teachings of Law may have applicability beyond Law's video filtering, we find that the applicability of these teachings is

limited to accessing the particular hardware structure taught by Law (a memory buffer comprising modules). Therefore, contrary to the Examiner's conclusion (Ans. 5), these teachings of Law are not applicable to Ding's hard disk drive access system.

We find no basis in the references for the "more efficient access to the image data [on the hard disk drive]" result articulated by the Examiner, and the Examiner has not set forth any such basis beyond this conclusory statement.

Appellants have established that the Examiner erred with respect to these rejections of claims 1-28 under § 103(a).

ANALYSIS - REJECTION UNDER 35 U.S.C. § 101

Appellants argue that the Examiner erred because the term "tangible" (added to claim 12 by amendment) precludes "the claims from reading on intangibles such as signals or mere information" as required by the Examiner's conclusion. (App. Br. 11-12).

We agree with Appellants that the term "tangible" (added to claim 12 by amendment) precludes "the claims from reading on intangibles such as signals or mere information" as required by the Examiner's conclusion. Claim 12 is limited to only "tangible" embodiments.

Appellants have established that the Examiner erred with respect to this rejection of claims 12, 14, 16, 17, and 25 under § 101.

CONCLUSIONS OF LAW

(1) Appellants have established that the Examiner erred in rejecting claims 12, 14, 16, 17, and 25 under 35 U.S.C. § 101 because the Examiner misconstrued the “tangible . . . medium” limitation required by claim 12.

(2) Appellants have established that the Examiner erred in rejecting claims 1-28 under 35 U.S.C. § 103(a) because the combination of prior art references does not actually provide the particular result which forms the basis of the Examiner’s articulated reason to combine the prior art references.

(3) On this record, claims 1-28 have not been shown to be unpatentable.

DECISION

The Examiner's rejections of claims 1-28 are reversed.

REVERSED

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